



# City of Muscatine

## Papoose Lift Station Function and Future

- History of wastewater treatment
- Permit requirements
- Papoose Flow Diagram
- Current Work
- Planned Gate Closure
- Future/Conclusion



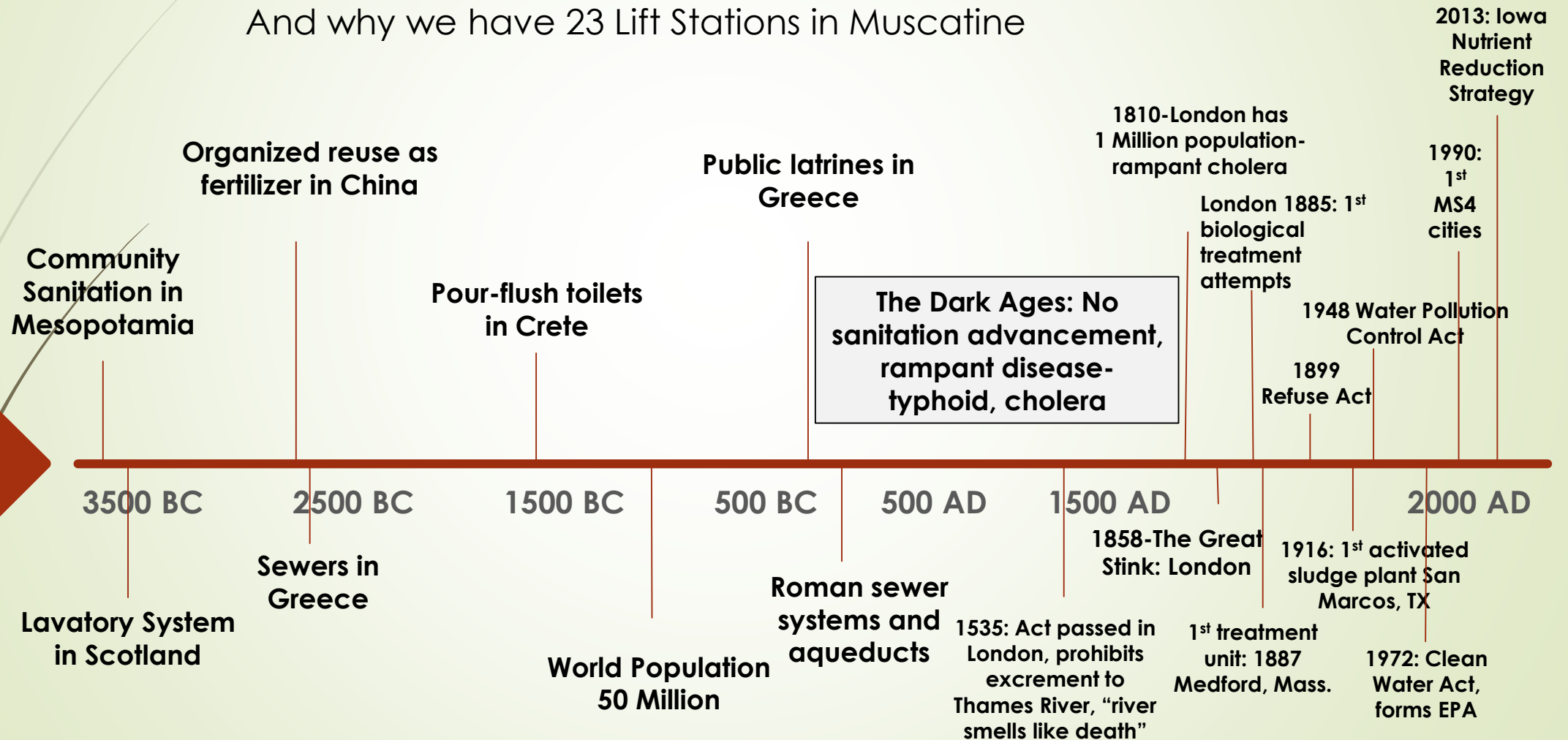
Papoose Lift Station Council Presentation  
October 10, 2019

Jon Koch-WRRF Director  
[jkoch@muscatineiowa.gov](mailto:jkoch@muscatineiowa.gov)

# Timeline of Treatment

Or the advent of “Man that stinks and how do we get rid of it!”

And why we have 23 Lift Stations in Muscatine





# National Pollution Discharge and Elimination System **NPDES**

- 5 Year Permit from DNR
- Authorized by 1972 Clean Water Act-EPA
- Authorized Outfall Identification-Point Source
- Effluent Limits, Sampling/Tests, Design Capacity
- CSO 9 Minimum Controls



## 9 Minimum Controls

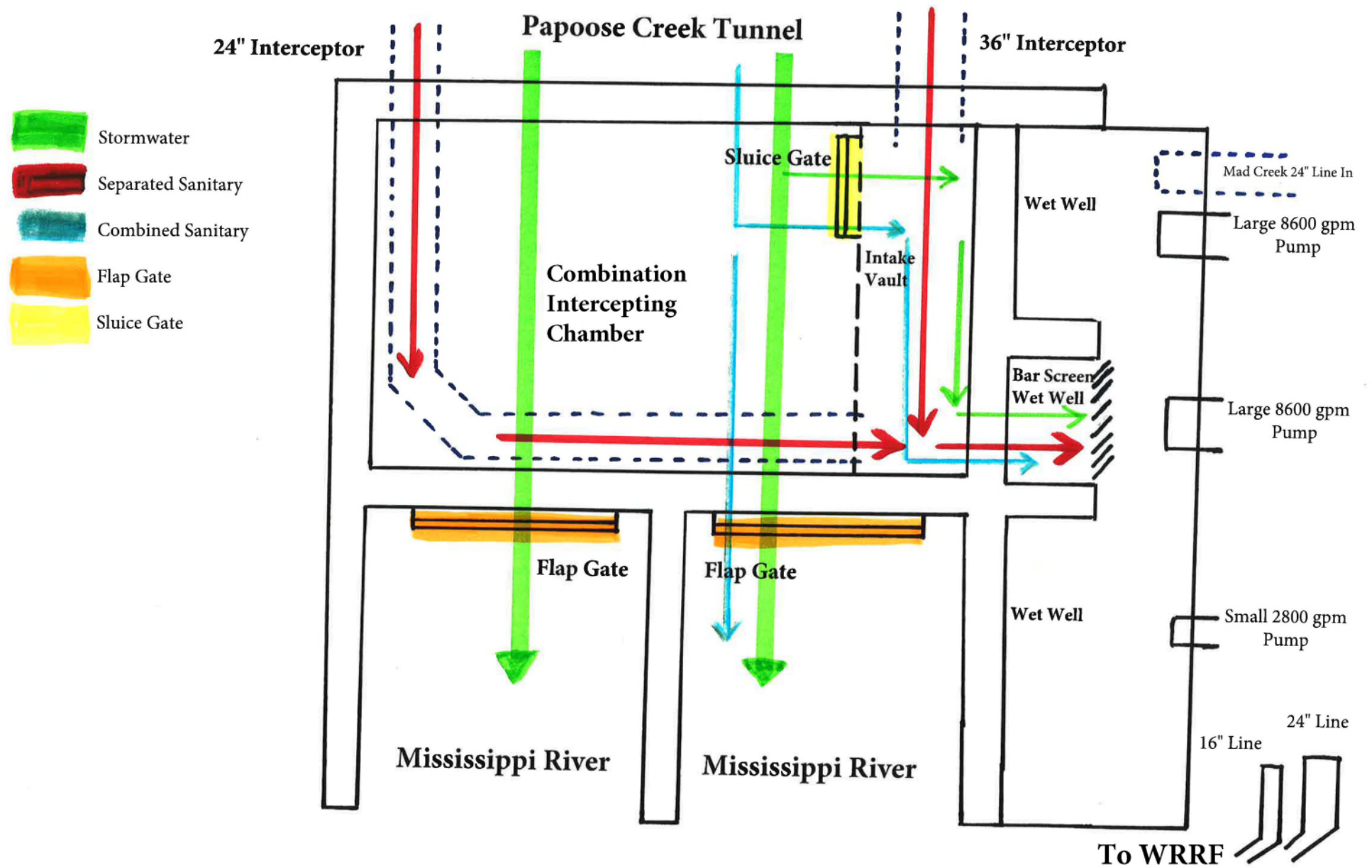
- #2 Maximum use of the collection system for storage to reduce magnitude, frequency, duration
- #4 Maximum of flow to the POTW (WRRF) for treatment during wet weather conditions to reduce magnitude, frequency, duration.
- #5 Prohibition of CSOs during dry weather conditions





# **Papoose Flow Diagram and Process**

# PAPOOSE LIFT STATION (PLS) FLOW DIAGRAM





# Sluice Gate

aka Slide Gate





# Sluice Gate Inspection Oct 3, 2019

Towboat Diving Service-Mike and Jeremy Honts





# Sluice Gate Report

- The gate is currently open 6 inches and we are still maintaining 5 foot differential of wet well compared to the river
- The stem is attached to the gate
- There does not appear to be any damage
- The gate is opening and closing but not confidently
- Prior to Oct 3 the gate would not open
- This gate is very old and not reliable, scheduled for replacement and automation: \$14,000 gate cost, automation and installation quote unavailable





## Bar Screen Installation For Scale Of Wet Well Depth





# Flap Gate Inspection Oct 3, 2019



## Closing the Sluice Gate

- Will eliminate the flow of Papoose Creek into the wet well
- Is not affected by river level
- Goes against #4 of 9 Minimum Control Requirement in City permit
- Allows us to maintain level below 17 feet where basements flood
- Special permission from DNR, only during high river rain events
- Protection of human health consideration



# Future/Conclusion

- We cannot pump the Mississippi River. This is what we are trying to do during high river levels and large rain events
- After separation 2028, we will not have to pump the River. The station will function much like it is with the gate shut
- Stormwater pumping from the Papoose Creek will need to be addressed before 2028
- Special permission allowed by DNR to shut the gate for certain events
- A new gate will be budgeted to ensure function
- New motor drives (VFDs) installed in coming weeks for pump reliability
- Pumps were all rebuilt in 2017

Jon Koch-Director Water & Resource Recovery Facility  
Muscatine, IA 52761

[jkoch@muscatineiowa.gov](mailto:jkoch@muscatineiowa.gov)

563-263-2752





## Scott T42 Turbo Separator Depackaging System    New Prague, MN

